

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

5

- 1 A panel comprising:
a frame member defining a periphery of said panel
a first wall retained by the frame and a second wall opposing said first wall and together with the first wall defining an internal space of the panel;
the panel further comprising at least one intermediate wall disposed in said internal space intermediate the first and second walls and which creates a first space in said internal space between said intermediate wall and said first wall and a second space in said internal space between said intermediate wall and said second wall; characterized in that the frame includes respective abutment surfaces which receive and retain respective first, second and intermediate walls wherein; the intermediate wall insulates said first wall from said second wall .
- 2 A panel according to claim 1 wherein, the first and second walls are glass panes secured peripherally by said frame.
- 3 A panel according to claim 2 wherein the frame defines a first recess for a first glass pane forming an external panel wall, a second recess for an intermediate insulating pane and a third recess for an internal glass pane.
- 4 A panel according to claim 3 wherein said abutment surfaces which receive and retain said first second and third walls, are respectively located in said first, second and third recesses.
- 5 A panel according to claim 4 wherein the intermediate wall is made from a rigid thermal plastics material.
- 6 A panel according to claim 5 wherein, the intermediate wall is mounted midway between said glass panes.

7 A panel according to claim 6 wherein, the abutment surfaces are shoulders formed in the frame.

8 A panel according to claim 7 wherein the glass panes and intermediate wall are attached to the shoulders of said frame using a rigid adhesive.

5 9 A panel according to claim 8 wherein the frame is formed from a plastics extrusion and includes abutting surfaces which receive at least one edge of said glass panes and at least one edge of said intermediate plastics wall.

10 10 A panel according to claim 9 wherein, the spaces between the intermediate wall and the first and second glass panels are spaced to maximize insulation by the intermediate wall of the first and /or second glass panes.

11 15 A panel according to claim 10 wherein the shoulders cascade from the inner glass pane to the outer glass pane.

12 20 A panel according to claim 11 wherein the recess for the outer pane has a different area from the respective recesses for the intermediate pane and inner pane.

13 25 A panel according to claim 12 wherein the spaces between the glass panes are filled with air and/or argon gas.

14 30 A panel according to claim 13 wherein the intermediate wall is transparent.

15 A panel according to claim 14 wherein the spaces between the glass panes are filled with air and/or argon gas via latex valves located in the frame.

16 A panel according to claim 15 wherein desiccant chambers are formed in at least one cavity in the frame extrusion and filled with desiccant moisture absorption granules in the frame.

17 A panel according to claim 16 wherein the cavities in said frame extrusions are sealed using plastic caps.

18 A panel according to claim 17 wherein a magnetised flexible gasket is inserted into a gasket retaining groove in the frame thereby providing an airtight seal between the panel and an article to which it is fitted.

19 A panel according to claim 18 wherein the intermediate wall insulates each glass pane from the other pane.

5

20 A panel according to claim 19 wherein the panel is used as a fridge/freezer door.

21 A panel according to claim 20 wherein the panel is used as a window.

10

22 A triple pane insulated fridge/freezer door panel comprising:
a peripheral frame;
a first pane defining an inner space in said panel and a second pane opposing said first pane and defining said inner space; each said panes being retained by the peripheral frame; the panel further comprising at least one intermediate pane disposed in said inner space between said first and second panes and which creates a first gap in said inner space between said intermediate pane and said first pane and a second gap in said internal space between said intermediate pane and said second pane; wherein said first, second and intermediate panes are supported by cascading shoulders on an inner face of said frame.

15

20

23 A door for the use on a cooling cupboard, fridge, freezer, or the like, the door comprising a peripheral frame,
a first skin connected to the frame,
a second skin connected to the frame and opposing the first skin such that said first and second skins define an internal space there between; the door further comprising in said internal space an intermediate wall member which insulates said first skin from said second skin.

25

30

24 A double/triple glazed insulated fridge/freezer door having inner and outer glass panels which together define an internal space wherein, the internal space includes a planar panel which insulates one said glass panel from the other panel, thereby reducing/eliminating condensation on the said glass panels.

5

25 A panel including a plastics frame in which is disposed two glass panes defining an internal air space; the internal space including at least one internal planar member which separates and insulates the two glass panes thereby reducing/eliminating condensation on the glass panes and door frame; wherein the frame defines a separate abutment shoulder for respectively receiving and retaining said two glass panes and said internal planar insulating member.

10

15 26 A /triple glazed insulated fridge/freezer door panel having a first wall and an opposing second wall; the opposing walls together defining an internal space; wherein the internal space includes an intermediate wall which insulates one or both said panels; thereby reducing/eliminating condensation on the said panels.

20

27 A panel according to claim 26 wherein the frame is a plastics extrusion.

25

28 A panel according to claim 26 wherein said first and second walls are made of glass panes.

29 A panel according to claim 28 wherein the intermediate wall is made of a clear transparent plastics material

30

30 A method for constructing a panel including a thermal plastics peripheral frame in which is disposed two panes defining an internal space; the internal space including at least one internal planar

insulating member which insulates the two panes thereby reducing or eliminating condensation on the panes and frame

the method comprising the steps of:

- 5 a) taking two panes of a predetermined size;
- b) taking an insulating member;
- c) constructing a frame from a thermal plastics extrusion so that the completed frame includes three shoulder regions;
- d) fitting said first pane to an inner shoulder of the frame;
- 10 e) fitting said insulating member to a second shoulder on said frame which is disposed in a central position relative to outside surfaces of the frame; and
- f) fitting said second pane to a third shoulder to form an outer surface of the panel;

15 wherein the panes are arranged so that the first and second panes define an internal panel and the insulating member is located intermediate the first and second panes; wherein, the internal space and insulating member insulate the first and second panes

20 31 A method according to claim 30 wherein the first and second panes are transparent glass.

25 32 A method for constructing a panel including a frame in which is disposed two glass panes defining an internal space; the internal space including at least one internal planar member which insulates the two glass panes thereby reducing/eliminating condensation on the glass panes and door frame;

the method comprises the steps of:

- 30 a) taking two glass panes of a predetermined size;
- b) taking an insulating member;

- c) constructing a frame from a plastics extrusion so that the extrusion includes respective bearing shoulders capable of receiving and retaining said panes and insulating member;;
- d) fitting said glass panels and plastic insulating panel to said respective bearing shoulders on said frame such that the panels are in opposing relationship and define the internal space housing the insulating member.

5 33 A method for constructing a panel wherein the method comprises the further step of placing the planar insulating member at an optimum spacing equidistant from the first and second glass panels to maximize insulation of said panes.

10 34 A method for constructing a panel according to claims 30 or 33 comprising the further steps of;

15 a) introducing absorption granules into the frame;

 b) sealing the internal space

 b) introducing air and/or argon gas into the internal space via a valve.

20